

Hazelwood Mine Fire Health Study

Scientific Reference Group Meeting 1/2021

Friday 9 July 2021

12.00pm AEST

Via Zoom

Minutes

1. In Attendance

Prof Ross Coppel (Chair), Prof Michael Abramson, Prof Michael Ackland, Dr Jillian Blackman, Dr Matthew Carroll, Dr Beth Edmondson, Melita Keywood, A/Prof Rebecca Kippen, Prof Alexander McFarlane, Prof Rory Wolfe, A/Prof Fay Johnston, Prof Yuming Guo, Dr Sue Yell

Apologies

Prof John Attia, Danny Brazzale, Prof Anna Hansell, Prof Graeme Zosky

2. Welcome

Stream Leads Matthew Carroll (Psychological Impacts), Fay Johnson (Latrobe Early Life Follow-up) and Sue Yell (Community Wellbeing) in attendance to respond to any questions regarding the Revised Project Plan for Years 8-10 of the Hazelwood Health Study.

3. Membership and SRG Chair

It was reported that Ross Coppel will step down from the role of Deputy Dean Research for the Faculty of Medicine, Nursing and Health Sciences at the end of 2021. RC will continue as SRG chair.

MA reported that Jane Ford has stepped down from the SRG following her retirement. It is expected that the Department of Health advise the Study of a decision on the renewal of the HHS contract in August 2021 and it was proposed that there be a discussion regarding the appointment of a new SRG member to replace Jane Ford then.

4. Conflict of Interest

Michael Ackland noted his previous role at the Department of Health.

5. Minutes of previous meeting (Att. 1)

Michael Abramson confirmed that he had reviewed the minutes of the previous meeting before they were circulated and believes they are an accurate record of the discussion. Michael Ackland moved that the minutes be accepted and Beth Edmondson seconded this.

6. Revised Project Plan Years 8-10 (Att. 2)

A copy of the draft Hazelwood Health Study Contract Review and Revised Project Plan for Years 8 – 10 outlines the Study findings to date and plans for the remaining 3 years of the Study.

Michael Abramson reported that when the Department of Health established the Hazelwood Health Study the 10-year contract period had been split into 5 contracts: Years 1-3, Years 4-5, Years 6-7, Years 8-9, and Year 10. As part of the negotiations for Year 8-9 of the Study, a variation to combine Years 8-10 into one 3-year contract will be proposed. This final extension would run from 1 November 2021 until 31 October 2024.

Jill Blackman emphasised that in preparing the Revised Project Plan for the final 3 years of the Study, the researchers are seeking a balance between conducting cutting edge research and value for the Department of Health and the community. Researchers are seeking to present a Revised Project Plan that will be sufficiently impressive, provide the community with useful information and be of enough value to the Department of Health to warrant a further 3-year extension of the contract.

Year 10 will primarily be used to clean and analyse the data, prepare the final reports and findings volumes for the 10-year study.

Ross Coppel encouraged researchers to consider the further utility of the research that has been conducted and the data collected, perhaps looking at rural health provision and how services can be improved. RC noted that the Faculty's strategic research priorities, which includes digital health and health systems and services, and emphasised the rich data that has been collected as part of the longitudinal Study.

Jill Blackman noted that researchers are looking for other future opportunities to extend the Study after Year 10, and suggested that it would be a good time to consider avenues for further research that would have beneficial outcomes for the community.

Ross Coppel suggested that there is an opportunity for a multi-sectoral view of the population, drawing on health and education data. RC noted the appointment of Professor Aron Shlonsky is Professor and Head of Department of Social Work, whose research focuses on child and youth services.

Matthew Carroll reported on the analysis of the NAPLAN identified data extract. Researchers have found a decrease in NAPLAN performance in Morwell in 2015 compared to the performance across the wider region in the period 2015-2018. Various factors have been factored into the model, including the fact that the Morwell students started at a lower base. After taking these factors into consideration, Morwell students still had lower NAPLAN scores than expected following the mine fire, equivalent to a 2-3-month delay, which had not returned to expected levels by 2018. Matthew Carroll reported that researchers have shared their findings with local contacts at the Department of Education.

Ross Coppel noted the establishment of the Fire To Flourish five-year transdisciplinary program led by the Monash Sustainable Development Institute, working at the intersection of disaster resilience and community development, which has been funded by the Paul Ramsay Foundation.

Michael Abramson reported that he has spoken to Jane Fisher who is involved in the Fire to Flourish program. The Program is looking for a site in Victoria, but will probably select a Local Government Area further north. It was agreed that it would be useful to think about the approach adopted for the Fire to Flourish program.

Sue Yell noted that the Latrobe Valley had been affected by a series of events and the impacts of these events are being tracked through social media and will provide wider context.

Matthew Carroll noted that cross stream work planned between the Early Life Follow-up and the Psychological Impacts Streams, which will conduct a survey of ELF families.

Researchers are also looking at collective resilience in the local community.

Michael Ackland noted that importance of resilience in school communities.

Rebecca Kippen commented on number of self-reported heart attacks, noting that the 10-fold difference between Morwell and Sale (1% or 30 cases in Morwell, versus 0.1% in Sale). It was agreed that it there was overreporting of heart attacks by people in Morwell.

Alexander McFarlane noted there is literature on panic attacks being reported as heart attacks.

It was agreed that researchers need to provide an explanation of self-reported data.

It was noted that there were no differences between exposed and unexposed adults in the cardiovascular test results (markers of underlying cardiovascular disease, reduced heart function, heart muscle damage, irregular heart rhythm or blood vessel health) 3.5 to 4 years after the fire.

Rebecca Kippen asked about the Community Wellbeing Barometer and what measures will be used. Sue Yell advised that the Wellbeing Barometer is still in development, and researchers are working on identifying objective measure for the broad domains and themes. The team plans to use 2021 Census data when it is available. The Wellbeing Barometer is designed primarily as a means of comparison of a community over time.

Melita Keyword suggested that the Revised Project Plan be a comprehensive forward plan, and asked how researchers will account for the impact of COVID-19 and the Black Summer fires. It was agreed that researchers will need to be explicit in explaining how these events have been accounted for.

Matthew Carroll noted that the Black Summer fires happened while the Psychological Impacts Adult Survey follow-up survey was in the field. Michael Abramson reported that Yuming Guo is modelling of the Black Summer fires exposure data. Future surveys will need to include questions on prior exposure, such as the Black Summer fires.

Sue Yell noted that the Community Wellbeing Stream has collected interview data during the COVID-19 pandemic. Round 2 data collection for the Respiratory and ELF Streams will be conducted during the COVID-19 period.

Michael Abramson noted the findings regarding poor nutrition in the Latrobe Valley and the grant which the Latrobe Health Assembly has awarded to a team led by Tracy McCaffrey from the Department of Nutrition, Dietetics and Food. This education intervention will provide participants from the Latrobe Valley with personalised dietary feedback.

An application for funding from the Heart Foundation for a clinical intervention is also being considered.







Michael Abramson advised that the next meeting with the Department of Health will provide an opportunity to discuss possible policy responses to Study findings, and hear what the Department is thinking in terms of policy responses. Ross Coppel agreed that this discussion regarding the Study's legacy is important. Michael Ackland encouraged the Study to engage with the department around the Study data and findings to support evidence-based policy. What are the implications of the Study findings for service delivery and improving life in rural and remote Australia.

It was proposed that a meeting be held next year to discuss the Study's legacy and opportunities to extend the research.

7. Study Findings

Contract Review and Revised Project Plan summaries the Study and infographics have been used to highlight the key research findings.

Respiratory health in adults: Summary of main findings¶

-  Mine fire smoke exposure was associated with increased respiratory symptom reporting 2.5-3 years after the fire.¶
-  Mine fire smoke exposure was associated increased chest tightness and chronic cough, and reduced lung stretchiness, 3.5 to 4 years after the fire. Amongst non-smokers, exposure was associated with increased COPD. Amongst smokers, exposure was associated with chronic cough. In exposed asthmatics compared to unexposed, there was no difference in symptoms or severity, lung function or airway inflammation, but some evidence of poorer asthma control.¶
-  During the mine fire period, there were approximately 37 additional ambulance attendances for respiratory conditions. Increases in smoke levels were followed by increases in ambulance attendances for respiratory conditions for about 5 days.¶
-  Increases in smoke levels were associated with increases in emergency presentations and hospital admissions for COPD combined with asthma, and with increases in emergency presentations for "all" respiratory diseases.¶
-  Among men, but not women, increases in smoke levels were associated with increases in visits to respiratory health specialists/services.¶
-  During the mine fire period, there was an increase in dispensation of respiratory medications.¶

Cardiovascular health in adults: Summary of main findings¶¶



Mine fire smoke exposure was associated with increased self-reporting of high blood pressure and heart attack in the 2.5-3 years since the fire, however numbers of cases were very small. ¶¶



There were no differences between exposed and unexposed adults in markers of underlying cardiovascular disease, reduced heart function, heart muscle damage, irregular heart rhythm or blood vessel health 3.5 to 4 years after the fire. ¶¶



During the mine fire period, there was no association between mine fire smoke and ambulance attendances for cardiovascular conditions. ¶¶



During the mine fire period, there was no increase in emergency presentations or hospital admissions for cardiovascular conditions. ¶¶



During the mine fire period, there was no increase in visits to cardiovascular health specialists/services. ¶¶



During the mine fire period, there was an increase in dispensation of cardiovascular medications. ¶¶



During the 6 months after the fire in Morwell, there was a 62% increase in risk of death from cardiovascular conditions. ¶¶



Dietary vegetables, grains, fresh meat and non-fried fish were associated with better cardiovascular health while soft drinks were associated with poorer cardiovascular health. ¶¶

ELF: Summary of main findings



Exposure to mine fire emissions during pregnancy was associated with:

- Higher incidence of gestational diabetes (GD) and increased birthweight in babies born to mothers with GD
- Parental reports of runny nose, cough, wheeze, health care visits and doctor diagnoses of upper respiratory infections in children 2-4 years after the fire



Exposure to mine fire emissions in infancy (0-2 years) was associated with:

- Antibiotic dispensations the year after the fire
- Parent reported use of asthma medication 2-4 years after the fire
- Increased respiratory system and blood vessel stiffness 3 years after the fire



Important household exposures:

- Maternal or other adult smoking in pregnancy or in the home, stress in pregnancy, ambient air pollution and (unflued gas heaters)



- Many results had weak evidence only and require confirmation with **further studies to determine if the effect(s) persist**

Schools Study: Summary of main findings



Approximately 1.5 years after the mine fire, on average, Morwell students reported more event-related PTSD symptoms than non-Morwell students. Primary school aged students across all locations reported more symptoms than secondary students. In general, distress levels had dropped in the second survey round two years later.



At the time of the mine fire event, specialist school personnel and students experienced particular difficulties. During the 2015 and 2017 interviews, the majority of mainstream school students reported few or no ongoing concerns, although some continued to experience symptoms consistent with PTSD.



NAPLAN data linked to 303 Schools Study participants showed that whilst Morwell students had poorer academic performance than non-Morwell students before the mine fire, this was exacerbated after the fire in year 7 and 9 students. Deidentified NAPLAN data for all Morwell schools and students, showed major academic interruptions occurred across all NAPLAN domains in the aftermath of the mine fire. Compared to the Victorian regional average, this interruption equated to a three to four-month delay in educational attainment which had not fully recovered several years later.

Adult Psychological Impacts: Summary of main findings



Approximately 2.5 years after the mine fire, moderate levels of distress were reported by adults in Morwell, and the level of distress experienced increased in line with level of PM_{2.5} exposure. Vulnerable groups included younger adults, and those with pre-existing respiratory or mental health conditions.



Some of the adults interviewed in 2016 reported symptoms consistent with PTSD such as heightened alertness, poor sleep, feeling *on edge* and intrusive thoughts.



Approximately 5.5 years after the mine fire, a follow-up survey of Morwell participants showed a small but significant increase in mine-fire related distress, particularly among younger adults. The level of event-related distress continued to be related to the level of mine fire exposure.



Smoke exposure was associated with moderate increases in mental health-related consultations, prescriptions, ambulance call outs and hospital admissions.



Findings are moderate, with most people not reporting concerns.

Older People and Community Wellbeing: Summary of main findings



Voices of older people were paid little attention during the event, especially those usually robust older people living independently in the community.



Lack of evidence about likely health impacts of the event hampered the public health response.



There was a notable loss of trust in the authorities which were dealing with the crisis.



Problems with official communication had a prominent role in the community's distress.



Local social media was important in filling communication gaps.

8. Impact of COVID-19 on HHS activities

Fay Johnson reported that COVID-19 has delayed the ELF clinical assessments by one year. Clinical testing is due to wrap up in a week. The number of participants was lower than researchers hoped, but there have been sufficient participants.

Michael Abramson reported that the Respiratory Stream clinical testing round has been delayed by a year. Clinical testing has commenced and 50 participants have been tested. Researchers are aiming to recruit 500 participants. He noted that the delayed appearance of respiratory effects after exposure is the driver for continuing with the further respiratory testing rounds.

Matthew Carroll reported that COVID-19 vaccination levels are perhaps a little lower in the Latrobe Valley. Vaccine hesitancy may be a factor. Access to GP clinics is definitely an issue, as there are GP long wait times.

9. Other Business

The Hazelwood Health Study is due to meet with the Latrobe Health Assembly sub-committee to get feedback on the Revised Project Plan.

10. Date of Next Meeting

TBC